or a proportionate quantity of dry brushwood, to assist in heating the kiln, keeping up the fire, particularly during the first two or three days.

The reed is brought to the kilns tied up with two or three bindings into bundles from 10 to 12 and 13 feet long each, and from 2½ to 3 feet in circumference. From 2000 to 2500 such bundles are required for a 700 maunds kiln, and from 12 to 1500 for one loaded with 500 maunds of stone; much depending, as with wood, on the state of the weather.

In favorable weather, and when wood is employed as fuel, a kiln, whether of 5 or 700 maunds, is allowed to burn four days and nights, during which time the fire must, of course, be constantly attended to and fed; when the reed is used, 24 hours more are allowed, or five days and nights; the average rate, therefore, of expenditure at a 700 maunds kiln, will be about 20 bundles per hour, or one every three minutes; the bundles are put in whole, the root end first, and gradually pushed forward to the centre of the fire-place as they consume.

The stone is considered sufficiently burnt when it glows with a white heat, and the interior and orifices of the small draft holes *k.* have become covered with a white incrustation, intermixed with small patches of the colour of sulphur. The native lime-burners appear to attach much importance to the latter sign, and I certainly observed it no where but in kilns that had been burnt and were cooling. The mouth of the fire place *m.* is now filled up with clods of earth or stones, but not so as to exclude the air altogether, at the same time the draft holes *i.* are carefully stopped with mud, and those marked *k.* loosely closed with small lumps of clay, which are gradually removed as the kiln cools. At the end of the second or third day, the outer crust or coating *h.* is stripped off, and the stones spreadout to be slacked, when they are all found to be equally well burnt throughout, slacking freely, throwing out a great deal of heat, and falling into a fine white powder. There was no appearance of vitrification to be seen at any of the kilns.

The loss of weight in burning is about 16½ per cent.[1], 1200 maunds of stone being calculated to produce 1000 maunds of pure slacked lime, the cost of which on the spot is from 16 to 18 rupees per 100 maunds.

The failure of a kiln, owing to the stone falling in, or the front *l.* giving way, is a very rare occurrence; nor did I observe more than two or three such accidents throughout Chúna Ganj and Chattac. For the first there is no remedy but to re-make the kiln, but the second is often averted by shores, or props, placed at A. *or* stone is sometimes built in across the mouth of the fire-place at *o.* and is more frequently seen at Chúna Ganj, where the *nal* is in general use; it serves to support the reeds as they are thrust forward to the fire, and regulates also the draft of air into the kiln.

T. R.

VI.—*Description of* Novaculina, *a New Genus of Fresh-water Bivalves, inhabiting the Ganges and its branches.* *By* W. H. Benson, *Esq. B. C. S.*

Order, *Conchifera dimyaria*; Division, *Crassipeda*; Family, *Solenaceæ*.

Genus. *Novaculina*[2]. Shell subinequivalve, inequilateral, transversely elongated; ligament external, communicating with the interior of the shell by an oblique channel. Beaks prominent. Hinge-line nearly straight. Two narrow entering teeth under the beak in one valve, generally three in the other. Syphonal scar very long. Extremities of the shell gaping. Epidermis easily detached when dry, folding over the edges and extremities of the shell, and connecting the hinge-margins. Interior glossy or dull, never pearly.

Animal. Mantle with the basal-edges united, forming a tube which encloses the animal, longitudinally constricted at the suture. Foot proceeding from the anterior extremity, short, thick, cylindrical, and very muscular; enlarged at the extremity into a disk, with a convex surface, the plane of which is at right angles with the axis

[1] This is a curious fact, and deserves verification, inasmuch as it is not reconcileable with any probable value of the combining weights or *prime equivalents* (as they are more generally termed) of the bodies. Thus 1200 maunds of limestone (*if pure,*) would afford 672 maunds of quick lime; and this, if slaked or converted into hydrate, would gain in weight 216 maunds, or would become 888 instead of 1000 maunds. Possibly the above numbers may not have been accurately ascertained.—Ed.

[2] Novacula, a razor.

of the foot and shell. Syphons separate, as long as the shell, when fully extended; the anal one, or that nearest the hinge, half the thickness of the other; apertures constricted, not ciliated.

Inhabits the Jumna, Gumti, and Ganges.

When I first discovered this shell, I was induced, from its lengthened form and gaping extremities, to suspect its affinity to the *Solenaceæ*, but the bad state of the deserted shells which I found, in which the sharp, delicate teeth were worn down to slight tubercles, which appeared of little importance, and the semi-internal ligament induced me to refer it, provisionally, to *Anodonta*, accompanied only by a mark of doubt. The teeth are so delicate that they are only to be found in the shell when taken with the animal, and the slightest cleaning breaks them down.

The shell is generally open as wide as the mantle and the epidermis (which is folded over the edge of the shell, and is soldered to the mantle) will permit. I placed between 40 and 50 live shells in a tub of water, with a piece of strong slaty clay, but none of them attempted to perforate it, possibly on account of its hardness, although kept for several days. The animal at times spirts a strong stream of water from the anal syphon. It inhabits cylindrical holes in clay, which it probably excavates with its powerful foot, which is always downwards. The holes descend to the depth of half a foot and more. I should not consider the shell, the extremity of which is defended by the lapping over of the epidermis, as sufficiently strong to aid in any way, except as a fulcrum for the operations of the foot. They are found by digging below the surface of the water, in the margins of banks, where they appear to have been perforated.

The worn shells are not uncommon in the beds of the Jumna and Gúmti, when the waters are retiring. They are rarely found in holes in *cancar* rock. In this case the shell is distorted, if confined in an irregular hole, to the sinuosities of which it, in a measure, conforms itself; thereby shewing that the residence was chosen accidentally, and that the abode was not formed by the animal itself. In the clay the shells are more symmetrical.

As in the *Solenaceæ*, the edges of the mantle are soldered together at the base, forming a tube which confines the animal, and gives more support to its muscular foot, the exertions of which are principally required in the direction of the axis of the shell. In its habits, *Novaculina* also resembles *Solen*, clay being merely substituted for sand, in which the latter genus delights to burrow vertically. The animal differs from *Solen*, in having its syphons free, instead of occupying a common tube; and in having an expanded, instead of a conical, termination to the foot.

To *Solen Ensis* the shell seems, at first, to have little resemblance; but it has more characters in common with *Solen Legumen*, which is less linear, and has comparatively prominent beaks situated towards the centre of the hinge,-margin. In *Solen Legumen*, also, the ligament, although external, has like our fluviatile shell, a chanel (not mentioned by Lamarck), communicating with the interior of the shell: and it appears deserving of forming a separate genus intermediate between *Solen Ensis*, and its affinities, and the genus under consideration.

Our shell is easily distinguished from the *Solens* which most nearly approach to it by its prominent beaks, its irregular form, and the great length of its syphonal scar. At times some of the teeth become obsolete, as in *Solen*; and both the cardinal and basal edges are subject to slight emargination.

Long before meeting with the live animal, I had predicted the extraordinary length of the syphons from the appearance of the syphonal scar, which, as Mr. Gray has well observed, in the Zoological Journal, is a good auxiliary character for the classification of bivalves.

Except Mr. Gray's new Chinese genus *Glauconome*, no other fresh-water shell has a long syphonal scar. The remaining *Conchæ Fluviatiles*, and the whole of the *Naiadæ* having but a slight emargination in the submarginal impression, and their ciliated syphons scarcely projecting beyond the extremities of the shells.

This shell is chiefly interesting as being the first of the family of *Solenaceæ*, or even of the *Crassipeda*, which has been ascertained to inhabit fresh water, and must be peculiarly so to the geologist, who can ill pronounce upon the nature of the medium which was inhabited by a fossil shell under investigation, until all the genera which inhabit fresh water are known. I must confess, however, that it has appeared to me, that in geology too much stress has been laid upon shells, and that the water which deposited them has often been hastily assumed as fresh, from the examination of the exuviæ found in a particular stratum, to which currents and other extraneous causes might easily have conveyed them from some vast antediluvian river.

Mr. G. B. Sowerby, to whom I forwarded dead, and therefore imperfect, specimens of the shell, in 1828, will have hardly failed to characterize the genus, as far as the specimens and remarks furnished would admit of, should he have received them safely; but as that may not have been the case, and as it is expedient, for the sake of reference, that the shell now described should not go forth unnamed, I have given it the provisional appellation of *Novaculina*,—a name, I believe, as yet unoccupied in Natural History. The only species known may appropriately be called *Gangetica*: the following is its description.

Shell oblong, with truncated extremities, white, slightly violaceous internally, epidermis olivaceous.

VII.—*Further Notice of the Produce of Land in India.*

In my last I mentioned that, considering the prices of wheat and the wages of labour in this part of the country and in England, it appeared that the value of money to the cultivating classes in this part of India was about seven times greater than its value to the same classes in England. It may be added, that the charge for interest of money to those classes is here not less on the average than 30 per cent. It varies from 24 to 40 per cent. I do not know what rate of interest these classes would pay in England.

The average purchase price of land, formed on 56 transfers by private contract, is 6, 16*s.* per acre. The highest price was 22s. 1½d.; the lowest 5,2*d.*

Seventy estates, comprising 31711 acres, contained 14203 souls—about 2¼ acres to an inhabitant, or 287 souls to a square mile.

Average prices of agricultural produce—Quantity sold for a Rupee.

	Of 10 years to 1827.	In 1829.	Mean of the foregoing.
	lbs.	lbs.	lbs.
Gúr,	64,148	80,31	72,2
Cotton, (unpicked)	33,46	33,46	33,46
Rice, (uncleaned)	141,881	174	157,943
Baira,	116,683	230,93	179,359
Wheat,	88,341	133,85	110,095
Barley,	139,204	187,39	163,297
Gram,	108,757	147,235	127,496

The following are the results of experiments made during the last *Rabbi* Harvest; which, however, was a bad season.

Division.	Number of Experiments.	Article.	Average Produce per Acre. Bushels.	Pounds.
No. 1,	44	Wheat,	9	35
	33	Barley,	11	46
	21	Gram,		473
No. 2,	239	Wheat,	11	47
	147	Barley,	15	27
	147	Gram,		770
No. 3,	237	Wheat,	12	10
	143	Barley,	15	
	142	Gram,		731
No. 4,	27	Wheat,	22	6
	15	Barley,	27	35
	5	Gram,		1504
No. 5,	9	Wheat,	13	38
	2	Gram,		824
No. 6,	15	Wheat,	11	12
	1	Gram,		843
No. 7,	41	Wheat,	19	51
	11	Barley,	30	44
	8	Gram,		1006

A mistake occurred in my writing or in printing the former notice; the proportion taken as rent should have been two-fifths, and not two-thirds, which could not be paid without actual starvation.

January, 1830.

H. S. B.